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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SEIICHI MATSUI

Appeal 2008-0138
Application 09/662,323
Technology Center 2600

Decided: March 10, 2008

Before ANITA PELLMAN GROSS, MAHSHID D. SAADAT, and JOHN A. JEFFERY, *Administrative Patent Judges*.

GROSS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Matsui (Appellant) appeals under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 4 through 12 and 16 through 24, which are all of the claims pending in this application. We heard the appeal on February 14, 2008. We have jurisdiction under 35 U.S.C. § 6(b).

Appellant's invention relates to an imaging apparatus and method for producing low definition image signals. According to the invention, only pixel information of pairs of adjoining lines is read from a solid image

device such as a CCD, and pixel information of one line is produced from the pixel information of each pair of adjoining lines read from the solid imaging device. Claim 4 is illustrative of the claimed invention, and it reads as follows:

4. An imaging apparatus comprising:

a solid imaging device in which pixel information of two adjoining lines composes color information of three primary colors, said solid imaging device comprises a matrix of transferring gates, to which gate pulses for transferring only the pixel information of pairs of two adjoining lines with intervals of a plurality of lines to vertical transferring routes are applied when image signals with low definition are produced;

a shooting optical system that forms a subject image on a receiving surface of said solid imaging device;

a timing generator that drives said solid imaging device and reads pixel information from said solid imaging device, the timing generator applying gate pulses for transferring only pixel information of pairs of two adjoining lines with intervals of a plurality of lines to vertical transferring routes to said transferring gates when image signals with low definition are produced; and

a signal processing device that produces the image signals by producing pixel information of one line from the pixel information of each pair of two adjoining lines read from said solid imaging device when the image signals with the low definition are produced.

The prior art references of record relied upon by the Examiner in rejecting the appealed claims are:

Dischert	US 6,040,869	Mar. 21, 2000
Harada	US 6,108,036	Aug. 22, 2000
Yamaguchi	US 6,342,921 B1	Jan. 29, 2002

Claims 4 through 7, 9 through 12, 16 through 19, and 21 through 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yamaguchi in view of Harada.

Claims 8 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yamaguchi in view of Harada and Dischert.

We refer to the Examiner's Answer (mailed November 27, 2006) and to Appellant's Brief (filed September 26, 2006) and Reply Brief (filed January 26, 2007) for the respective arguments.

SUMMARY OF DECISION

As a consequence of our review, we will reverse the obviousness rejections of claims 4 through 12 and 16 through 24.

OPINION

The Examiner asserts (Ans. 5-6) that the only limitation lacking from Yamaguchi for each of independent claims 4, 11, 12, 16, 23, and 24 is a signal processing device that produces pixel information of one line from the pixel information of each pair of two adjoining lines when image signals of low definition are produced. The Examiner asserts that Harada discloses the missing limitation in Figure 9 and column 34, lines 23-41, and that it would have been obvious to combine Harada with Yamaguchi to "provide a means for adding signals outputted from two adjacent light-receiving regions to generate a single output in each field."

Each of independent claims 4, 11, 12, 16, 23, and 24 recites a solid imaging device in which pixel information of two adjoining lines composes color information of three primary colors and a signal processing device that

produces low definition image signals by producing pixel information of one line from the pixel information of each pair of two adjoining lines read from the solid imaging device. In Figure 1, Yamaguchi shows a solid imaging device (CCD) 101, a timing generator 108 that switches between line thinning mode and full-frame reading mode, and a signal processing circuit 104. In the line thinning mode, every other line is read out. (*See* col. 9, ll. 46-67, and col. 11, ll. 43-46.) First the signal of only red is read out, and then the signal of only green is read out. (*See* col. 16, l. 23-col. 17, l. 6.) Thus, as admitted by the Examiner, Yamaguchi does not disclose producing pixel information of one line from the pixel information of each pair of adjacent lines, as Yamaguchi does not read out pairs of adjacent lines.

Harada discloses (col. 25, ll. 25-60, and col. 28, ll. 2-8) an imaging means formed of three solid state imaging devices, each dedicated to a corresponding monochromatic light component. Harada further discloses (col. 34, ll. 30-41) that the n th row is added to the $(n+1)$ th row in a first field and to the $(n-1)$ th row in a second field. However, each pair of rows added together has pixel information of a single color, as each pair is for a solid state imaging device dedicated to a corresponding monochromatic light.

Since Yamaguchi does read out every other line, it is unclear how one would apply Harada's method of adding the n th and $(n+1)$ th and the n th and $(n-1)$ th lines read out. Further, even if Harada's method could somehow be applied to Yamaguchi, the combination of two adjacent lines still would not produce a single line of pixel data of three primary colors. Accordingly, we cannot sustain the obviousness rejection of independent claims 4, 11, 12, 16, 23, and 24 and the claims which depend therefrom, claims 5 through 7, 9, 10, 17 through 19, 21, and 22.

For claims 8 and 20, the Examiner adds Dischert to the primary combination. However, Dischert fails to cure the shortcomings of Yamaguchi and Harada. Therefore, we cannot sustain the obviousness rejection of claims 8 and 20.

ORDER

The decision of the Examiner rejecting claims 4 through 12 and 16 through 24 under 35 U.S.C. § 103 is reversed.

REVERSED

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